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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/651,998

09/02/2003

Hideki Sawaguchi

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EXAMINER

ABRAHAM, ESAW T

ART UNIT

PAPER NUMBER

2133

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/651,998

Applicant(s)

SAWAGUCHI, HIDEKI

Examiner

Esaw T. Abraham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

GUY LAMARRE
PRIMARY EXAMINER

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims **1-15** are presented for examination.

Oath Declaration

2. The oath/declaration filed on 09/02/03 is acceptable.

Drawings

3. The drawings are objected to because **labels or legends** need to be used to identify the boxes shown in the figures (1-2, 4, 8-13) (see MPEP 608.02(9)).

A proposed drawing correction or corrected drawings are required in reply to the office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Corrected drawings sheets in compliance with 37 CFR 1.121(d) are required in reply to the office action should include all the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended". If a drawing figure is to be cancelled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheet may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header so as not to obstruct any portion of the drawing figures. If the changes are not acceptable by the examiner, the applicant will be notified and informed

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of any required corrective action in the next office action. The objection to the drawings will not be held in abeyance.

Priority

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) filed on 03/20/03.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure. See MPEP 608.01(b).

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "the disclosure defined by this invention," "the disclosure describes," etc.

The abstract of the disclosure is objected to because:

- The abstract exceeds 150 words.
- The term " errorYcorrection " is misspelled (see line 7)

Correction is required.

Claim objections

6. Claims 1-13 are objected to because of the following informalities:

a) Please remove the reference characters (which are in brackets) from the claims (1-3) since the use of reference characters is to be considered as having no effect on the scope of the claims. (see MPEP 601.01(m)).

b) In line 20, "predetermined length and holds **them**" should be "predetermined length and holds the said plural code sequence blocks" (see claim 3)

c) In line 13, the claim 4 recites, "the encoding circuit" and it should recite, "the second encoding circuit" to show proper antecedent.

d) Claim 2 recites "a recording format" instead of "the recording format".

e) Claims 4-13 recite "an information recording/reproducing instead of "the information recording/reproducing".

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 3 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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a) Claim 3 recites, "a circuit that adds a redundant code sequence by the first error correction".

Nowhere in the specification does the Applicant teach "a circuit that adds a redundant code". For example, specification, page 32 lines 17-27 only teaches "the recording information data sector (the information code 22 and the redundant code 23 based upon the Reed-Solomon code) is divided into plural code blocks 22a and the second error-correction coding (parity coding) is performed in units of divided individual code block 22a, and further on page 73 lines 12-18 teaches "redundant codes or a redundant code sequence are added to the information data sector, the information data sector to which the first error-correction coding is applied is divided into continuous plural code sequence blocks each of which has predetermined length of the code symbols.

b) Claim 3 recites, "an error-correction encoding circuit that outputs a series of code sequence block as a code sequence recorded....after redundant code bits output from the second encoding circuit are inserted.... emphasis added.

Nowhere in the specification does the Applicant teach "an error-correction encoding circuit. For example, specification, page 73 lines 18-24 only teaches "second error-correction coding is applied to each the code sequence block, redundant codes hereby acquired are inserted to the corresponding code sequence block, the code sequence block to which the second error-correction coding is applied has a code sequence block length in units of code symbol in the first error-correction coding the code sequence block

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claims 1 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "equal to or shorter than" (see in line 17 of claim 1, line 10, page 78 and line 4, page 79 of claim 3) renders the claims indefinite. Applicants are suggested to replace "shorter" with an exact value or cancel the claim.

9. Claims 3 and 5-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is: a circuit that adds a redundant code.

a) It is not clear where the said circuit is exactly located. Further, it is not clear if the circuit is confined inside the first encoding circuit or is externally connected to the same. The interconnections of such element (circuit) with the first encoding circuit can neither be visualized in the drawings nor can be clearly understood from the claimed language for proper examination purposes.

b) The omitted element is: an error correction encoding circuit

It is not clear where in the claimed error correction-encoding circuit is located. Further, it is not clear if the said encoding circuit is confined inside the second encoding circuit or is externally connected to the same. The interconnections of such element (an error correction encoding circuit) with the second encoding circuit can neither be visualized in the drawings nor can be clearly understood from the claimed language for proper examination purposes.

c) The omitted element is: a soft-output decoder (as in claim 5)

It is not clear where in the claimed encoding circuit comprises the soft-output decoder. Further, it is not clear if the said soft-output decoder is confined inside the encoding circuit or is externally connected to the same. The interconnections of such element (soft-output decoder) with the second encoding circuit can neither be visualized in the drawings nor can be clearly understood from the claimed language for proper examination purposes.

Claims 6-13 depend from respective claim 5, hence inherit the deficiencies of claim 5.

Claim Rejections - 35 USC § 101, Non Statutory

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims **1 and 2** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter because:

Claims 1 and 2 are directed to a data structure (recording format). See Warmerdam, 33 F.3d at 1361, 31 UPPQ2d at 1760 (claim to a data structure pre se held nonstatutory). When non-functional descriptive material is recorded on some computer-readable medium, it is not statutory since no requisite functionality is present to satisfy that practical application requirement as producing a useful, concrete, tangible result. Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make it statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S. C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-2 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hattori et al. (U.S. PN: 6,798,593) (hereinafter "Hattori")

Hattori teach or disclosed a method and apparatus for reproducing data recorded on a recording medium and a method and apparatus for recording and/or reproducing data for a recording medium (see col. 1, lines 9-14). Hattori further teaches that for recording signals on these recording mediums, physical processing needs to be performed on the recording mediums, such as by controlling the direction of magnetization by a write head for a recording medium of the magnetic recording system, or by forming pits of lengths corresponding to signals by a stamper for a

recording medium of the optical recording system and in order to permit the normal operation of amplitude control (amplitude gain control) of readout signals or clock reproduction (data timing recovery) on the reproducing side reading out the signals recorded on the recording medium, the signal recording side for recording signals on a recording medium routinely uses a system of modulation encoding the signal in a pre-set fashion to record the resulting modulation-coded signal (see col. 1, lines 22-35).

Hattori further teaches that the modulation coding may be classified into a block coding system (an information code composed of error correction and detection codes (parity code bits)) in which input bits are divided into plural blocks of pre-set lengths and output bits generated are divided into plural blocks of pre-set lengths corresponding to the blocks of the input bits, and a variable length (length of block codes including the parity codes) coding system, in which encoding units of input bits and output bits associated with the input bits are variable. For example, the so-called 8/9 code or the 16/17 code, routinely used for modulation coding, belong to the block coding system, whilst the so-called (1, 7) RLL code or the (2, 7) RLL code belong to the variable length encoding system (see col. 1, lines 36-55).

12. Claims 3-15 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Cameron et al. (U.S. PUBN: 2002/0051499) (hereinafter "Cameron").

As per claims 3 and 14-15:

Cameron teaches or discloses an invention relates to methods, apparatus for use with a code having a turbo encoded inner code linked to an outer algebraic (Reed-Solomon) code via an interleaver (see page 1, paragraph 0002). Cameron further in

figure 2B is a block of a portion of a signal encoder whereby a message tuples 107 are provided to channel encoder 109. Channel encoder 109 comprises a Reed-Solomon unit 201 (first encoding circuit that applies first error-correction code). The output of the Reed-Solomon (RS) unit 201 which includes a RS encoder and may include an interleaver (for rearranging and creating interleaved symbols or sequences and storing the symbols) is then provided to an interleaver 225. The output of interleaver 225 is provided to a turbo trellis-coded modulation (TTCM) encoder 208. The interleaved output of the Reed-Solomon unit 201 is then provided to a turbo encoder 203 (second encoding circuit that executes second error-correction coding), which applies a parallel concatenated (turbo) encoding to the input received from the interleaved output of the Reed-Solomon unit 201, and further provides it to a mapper 205. In addition, some of the bits of the interleaved data output from the Reed-Solomon unit 201 may bypass the turbo encoder 203 entirely and be coupled directly into the mapper 205 (switching circuit) (see page 4, paragraph 0070).

As per claim 4:

Cameron in figure 2, teaches a second error correction encoder 203 (turbo coder) or in figure 3 element 300 comprising a code permutation 309 (an interleaver) for processing code sequence and for holding the result of code permutation, encoding circuits (307 and 311) for executing second error correction coding and a circuit 305 (selector) for inserting and selecting redundant bits (see col. 5 paragraph 0077).

As per claims 5:

Cameron in figure 2A disclosed turbo encoder (227) transmitted through a channel (229). Turbo decoder (231) follows at the receiving end and the decoded data provided by the turbo decoder (231) is provided to a data interrelaver (223) in a process that reverses the interleaving process (see page 4, paragraph 0068). Cameron further in figure 26 teaches a turbo trellis decoder including two soft-in soft-out (SISO) modules (decoders) to produce soft output to the interleavers (see figure 27 and page 17, paragraph 0150).

As per claims 6 and 7:

Cameron in figure 2B is a Channel encoder 109 comprises a Reed-Solomon unit 201, which provides a first encoding of the message 107. The Reed-Solomon unit 201 (first error correction encoding circuit) produces a stream of encoded codewords. The output of the Reed-Solomon (RS) unit 201, which includes a RS encoder and may include an interleaver (a memory circuit that holds the contents of code sequences). Further, Cameron in figure 1 disclosed an earth station antenna 117 collects the satellite signal and provides the collected signal to a receiver 119. The receiver 119 will amplify and Demodulate/detect the signal as appropriate and provide the detected signal to a decoder 121 and the decoder reverse the process of the channel encoder 109 and recreate the message 123. The decoder may use Forward Error Correction (FEC), in order to correct errors in the received signal (see 0065).

As per claims 8 and 9:

Cameron in figure 2B disclosed channel encoder 109 comprises a Reed-Solomon unit 201 (first encoding circuit that applies first error-correction code). The

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output of the Reed-Solomon (RS) unit 201, which includes a RS encoder and may include an interleaver (for rearranging and creating interleaved symbols or sequences and storing the symbols) is then provided to an interleaver 225. The output of interleaver 225 is provided to a turbo trellis-coded modulation (TTCM) encoder 208.

The interleaved output of the Reed-Solomon unit 201 is then provided to a turbo encoder 203 (second encoding circuit that executes second error-correction coding), which applies a parallel concatenated (turbo) encoding to the input received from the interleaved output of the Reed-Solomon unit 201, and further provides it to a mapper 205. In addition, some of the bits of the interleaved data output from the Reed-Solomon unit 201 may bypass the turbo encoder 203 entirely and be coupled directly into the mapper 205 (switching circuit) (see page 4, paragraph

As per claim 10-13:

Cameron in figure 4 disclosed three delay elements 417, 419 and 421 to increase time interval are clocked by an encoder clock. Modulo-2 adders 411, 413, 415, 423 and 425 are combinational circuits are unclocked. In combinational circuits the output appears a time delay after the inputs are changed. This time delay is due to the propagation time of the signal within the combinational circuits (this delay is assumed as a near zero delay herein) and not due to any clocking mechanisms. In contrast, a delay unit, such as 417, will not change its output until it receives an appropriate clock signal (see page 5, paragraph 0080).

Conclusion

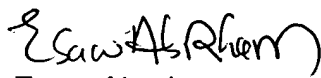
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US PN: 5,875,199 Luthi, Daniel A.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (571) 272-3812. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for after final communications.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Esaw Abraham

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